Amendments to the Claims:

1-21. (Canceled)

22. (Currently Amended) A method of manufacturing a composite structure comprising individual tows, the method comprising the steps of:

specifying properties regarding the structure into analytical software tools;

integrating design optimization tools with the analytical software tools to define a closed loop design system, such that the closed loop design system provides a final design;

providing true 3-D geometric tow definition of individual tows of the composite to the closed loop design system to perform quantifiable computational assessments of common geometric flaws such as tow gaps and overlaps; ~~and~~

translating the final design into a form understandable by a fiber placement machine; and

using the translated final design in order to manufacture the composite structure.

23. (Canceled)

24. (Currently Amended) A method according to Claim ~~23~~ 22 wherein providing true 3-D geometric tow definition comprises visualizing actual tow geometry in 3-D space.

25. (Previously Presented) A method according to Claim 24 wherein visualizing actual tow geometry in 3-D space further comprises selecting display parameters to accentuate design features.

26. (Currently Amended) A method according to Claim ~~23~~ 22 wherein performing quantifiable computational assessments of common geometric flaws further comprises:

analyzing the actual size and area of specific local flaws; and

analyzing the actual size and area of total flaws within a prescribed area.

27. (Previously Presented) A method according to Claim 22 wherein translating the final design comprises providing output from a geometry analysis module to the fiber placement machine via simulation software and an intelligent front end.

28. (Previously Presented) A method according to Claim 22 wherein integrating design optimization tools with the analytical software tools comprises employing object-oriented programming language to provide object structure.

29. (Previously Presented) A method according to Claim 22 wherein integrating design optimization tools with the analytical software tools comprises simulating the final design by producing theoretical paths of the tows for a set of user-defined manufacturing criteria.

30. (Previously Presented) A method according to Claim 29 wherein simulating the design further comprises:

defining input tool geometry; and

defining tow path parameters.

31. (Currently Amended) A method of manufacturing a composite structure comprising individual tows, the method comprising the steps of:

specifying properties regarding the structure into analytical software tools;

integrating design optimization tools with the analytical software tools to define a closed loop design system, such that the closed loop design system provides a final design;

providing true 3-D geometric tow definition of individual tows of the composite to the closed loop design system to perform quantifiable computational assessments of common geometric flaws such as tow gaps and overlaps;

analyzing material properties of tows of each layer of the composite structure by drilling normal to the composite structure in any local area of the composite structure; ~~and~~

translating the final design into a form understandable by a fiber placement machine; and

using the translated final design in order to manufacture the composite structure.

32. (Previously Presented) A method according to Claim 31 wherein analyzing material properties of each layer comprises providing user-selected methods to define local drilling positions that correlate with a finite element discretization.

33. (Previously Presented) A method according to Claim 32 wherein providing user-selected methods to define local drilling positions further comprises:

defining drill sites within the periphery of a finite element; and

averaging results of the drilling.

34. (Previously Presented) A method according to Claim 31 wherein analyzing material properties of tows comprises determining the material thickness of each layer of tows.

35. (Previously Presented) A method according to Claim 31 wherein analyzing material properties of tows comprises determining the orientation of each layer of tows.

36. (Previously Presented) A method according to Claim 31 wherein analyzing material properties of tows comprises determining the existence of certain features in any local area.

37. (Previously Presented) A method according to Claim 31 wherein translating the final design comprises providing output from a geometry analysis module to the fiber placement machine via simulation software and an intelligent front end.

38. (Previously Presented) A method according to Claim 31 wherein integrating design optimization tools with the analytical software tools comprises employing object-oriented programming language to provide object structure.

39. (Canceled)

40. (Canceled)

41. (Currently Amended) A method according to Claim ~~40~~ 31 wherein providing true 3-D geometric tow definition comprises visualizing actual tow geometry in 3-D space.

42. (Previously Presented) A method according to Claim 41 wherein visualizing actual tow geometry in 3-D space further comprises selecting display parameters to accentuate design features.

43. (Previously Presented) A method according to Claim 31 wherein integrating design optimization tools with the analytical software tools comprises simulating the final design by producing theoretical paths of the tows for a set of user-defined manufacturing criteria.

44. (Previously Presented) A method according to Claim 43 wherein simulating the design further comprises:

defining input tool geometry; and

defining tow path parameters.